Claims

We claim:

1. A lithographic material that contains a polymer bearing at least one polyhedral oligomeric silsesquioxane group, the alkyl substituents of the group -that are not linked to the main chain (backbone) of the polymer- containing up to 3 carbon atoms.
2. A positive tone lithographic material that contains a polymer bearing at least one polyhedral oligomeric silsesquioxane group, the alkyl substituents of the group -that are not linked to the main chain (backbone) of the polymer- containing up to 3 carbon atoms.
3. A chemically amplified positive tone lithographic material that contains a polymer bearing at least one polyhedral oligomeric silsesquioxane group, the alkyl substituents of the group -that are not linked to the main chain (backbone) of the polymer- containing up to 3 carbon atoms.
4. A chemically amplified positive tone lithographic material that contains a polymer bearing at least one polyhedral oligomeric silsesquioxane group, the alkyl substituents of the group -that are not linked to the main chain (backbone) of the polymer- being ethyl groups.
5. A chemically amplified positive tone lithographic material that contains a (meth)acrylic polymer, bearing at least one polyhedral oligomeric silsesquioxane group, the alkyl substituents of the group -that are not linked to the main chain (backbone) of the polymer- being ethyl groups.
6. A lithographic process including a 157 nm exposure of a lithographic material containing a polymer, bearing at least one polyhedral oligomeric silsesquioxane group.
7. A lithographic process including a 157 nm exposure, or generally VUV, or EUV exposure, of a lithographic material containing a polymer, bearing at least one polyhedral oligomeric silsesquioxane group, the alkyl substituents of the group -that are not linked to the main chain (backbone) of the polymer- containing up to 3 carbon atoms.
8. A lithographic process including a 157 nm exposure, or generally VUV, or EUV exposure, of a lithographic material containing a polymer, bearing at least one polyhedral oligomeric silsesquioxane group, the alkyl substituents of

the group -that are not linked to the main chain (backbone) of the polymer- being ethyl groups.

9. A bilayer lithographic process with a positive tone lithographic material containing a polymer, bearing at least one polyhedral oligomeric silsesquioxane group, the alkyl substituents -that are not linked to the main chain (backbone) of the polymer- containing up to 3 carbon atoms.
10. A bilayer lithographic process with a positive tone lithographic material containing a polymer, bearing at least one polyhedral oligomeric silsesquioxane group, the alkyl substituents -that are not linked to the main chain (backbone) of the polymer- being ethyl groups.